

# Environmental Stewardship

## Installation Restoration

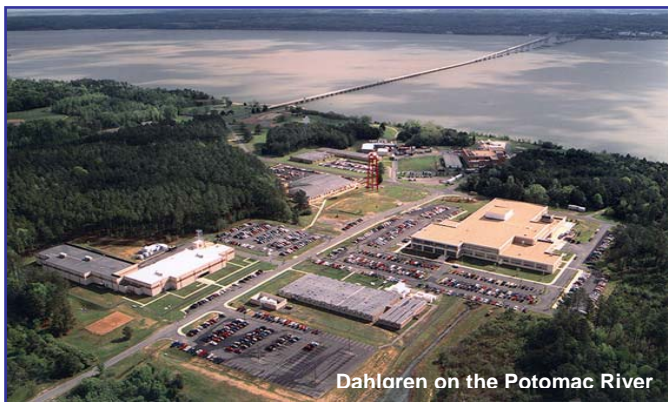
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A Dahlgren Public Affairs Fact Sheet

### Testing on the Potomac River

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A substantial part of the Navy's Research, Development, Testing & Evaluation mission at Dahlgren involves the Potomac River. Our guns have been firing projectiles at



Dahlgren on the Potomac River

targets in the Potomac River since 1918. Changes in our mission and advances in technology and computer simulation have resulted in a decrease in the number of projectiles fired into the river annually, from about 25,000 in the 1960s to about 2,000 in 2003.

We receive many questions about the impact of our testing activities on the river. The projectiles we fire are essentially steel cases surrounding filler material. Usually the filler material is inert (not explosive), but occasionally the filler is composed of explosive materials that are designed to detonate prior to impact with the water. The detonation process, including the continued combustion that occurs in the plume immediately after initial detonation, results in nearly complete burning of explosive compounds, turning them into ordinary carbon dioxide, nitrogen oxides, and water.



5" armored projectile

Steel projectiles corrode very slowly in the water and often become encrusted before fully corroding, which slows down the release of metals into the water. Very rarely projectiles containing explosive materials do not detonate before hitting the water. The detonating materials in unexploded projectiles in the water remain encased for long periods of time. If these materials are exposed to water, though, they break down in a matter

of hours and are not known to accumulate in fish or people. The impact on river water quality and organisms is minimal.

Spent projectiles typically become embedded in sediments at the bottom of the river to depths of ten feet, and remain buried. Projectiles not fully buried in the sediment often become a solid base – in effect, a small reef – which river organisms such as oysters and a variety of invertebrates and algae eventually colonize.

**Public Safety.** In the very rare cases where law enforcement officials or the general public find a projectile from a test in shallow water or washed ashore, we respond immediately to secure the item and safely remove it. If you find a projectile:

1. DO NOT TOUCH OR ATTEMPT TO MOVE THE ITEM.
2. Phone the Dahlgren base operator – (540) 653-8531 – and give your name, address, phone number and location of the suspect item.
3. Mark the area (avoid direct contact with the suspect item).
4. The base operator will contact the Explosive Ordnance Disposal response team – on call 24 hours a day – who will follow up with you.

**Water Quality.** In May 2001 scientists took a number of water and sediment samples at the mouth of Upper Machodoc Creek where it enters the Potomac River. They found no explosive constituents in these samples. Various metals (aluminum, barium, calcium, thallium, and zinc) were present, but at levels below state and federal surface water quality criteria. In fact, Navy testing of underwater munitions dumps and range areas around the country has yielded similar results.

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Sampling fish in Hideaway Pond

## Installation Restoration Program

Prior to the 1970s, common nationwide disposal practices were very different from today's disposal methods, which are based on our enhanced knowledge of contaminants and associated risks to human health and the environment. Disposal used to involve placing waste, both solid and liquid, into unlined landfills. At Dahlgren, debris, munitions, scrap metal, petroleum-based liquids, electrical equipment containing polychlorinated biphenyls (PCBs) components, and even whole airplanes were at one time disposed of in this way.



In 1992 the US Environmental Protection Agency (USEPA) designated the Dahlgren base as a Superfund National Priority List site, and cleanup became a major focus. We initially identified potentially contaminated sites ranging from large landfills to areas where a few gallons of oil had been spilled on the ground. A series of studies



revealed that relatively little contamination of shallow groundwater had occurred as a result of the outdated disposal practices.

We then investigated the potentially contaminated sites initially identified. The smallest sites were cleaned up immediately. Misidentified sites requiring no remediation were removed from the list. In 1994, the 68 remaining sites became the focus of our Installation Restoration Program (IRP). Today, remediation at 50 of those sites is complete, and the sites are being closed; only 18 sites remain open. We expect cleanup to be finished by 2011.

A significant part of the IRP here, as at any military facility, is the involvement of interested members of the public through participation on the Restoration Advisory Board (RAB), which is a joint military-civilian committee



that monitors the progress of site cleanup. Our RAB was formed in 1994, meets twice a year in the spring and fall, and currently has about 10 members. Anyone in the community who is interested in joining the RAB is welcome

to do so by contacting the Dahlgren Public Affairs Office at (540) 653-8153.

**Success Story at Site 6.** Remediation Site 6, Terminal Range Airplane Park, is a good example of Dahlgren's cleanup program. Located on the west bank of Gambo Creek, three-acre Site 6 was once used as a landfill for gun butt materials and to store scrap metal, empty drums, inactive aircraft, gun mounts, steel shelters, items waiting to be tested, railroad ties, and telephone poles. We investigated the site, developed a Remedial Action Plan, reviewed the plan with the RAB, Virginia Department of Environmental Quality and USEPA, and then executed the plan. Studies indicated that runoff from the site had resulted in elevated levels of metals, polynuclear aromatic hydrocarbons (PAHs), phthalates, and PCBs in the soil. The work performed included removing all waste and associated contaminated soils and sediments, properly disposing of them offsite, restoring the wetland area disturbed by the removal, and constructing additional wetlands to compensate for wetland losses experienced at other Dahlgren sites.



If you have any questions or comments, please call:

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Or visit us on the Web:

General site: [www.nswc.navy.mil](http://www.nswc.navy.mil)  
Range site: [www.nswc.navy.mil/wwwDL/RANGE/](http://www.nswc.navy.mil/wwwDL/RANGE/)